

Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of)	
)	
Progeny LMS, LLC)	
)	File No. RM-10403
)	
Amendment of Part 90 of the Commission's)	
Rules Governing the Location and Monitoring)	
Service to Provide Greater Flexibility)	

COMMENTS

WaveRider Communications Inc., a Nevada Corporation, pursuant to Section 1.405(a) of the Commission's Rules, hereby submits its comments with respect to the above-captioned Petition for Rulemaking ("Petition") filed by Progeny LMS, LLC ("Progeny"), in which Progeny requests that the Commission initiate a rulemaking proceeding to modify certain of its Part 90 rules that govern operation of the Location and Monitoring Service (the "LMS") in the 902-928 MHz band.

WaveRider is a leading global provider of high-speed fixed wireless Internet access products. The company's Last Mile Solution® products have been deployed by service providers throughout the world as a cost-effective alternative to traditional 'wired' telecommunications networks. The success of WaveRider's Last Mile Solution® product family lies in its quality, speed, ease of deployment and its ability to support a cost-effective business model for all types of operators. In particular, the company's non-line-

of-sight (NLOS), self-installable solutions operating in the license-free 902-928 MHz spectrum, are gaining increasing acceptance in the market place. In January 2002, WaveRider's technology, which operates in the 902-928 MHz band, was the recipient of two awards from the Wireless Communications Association. These WCA annual advanced technology or community service awards, known as "The Wemmies, " are selected by WCA's jury of distinguished carrier or diversified engineering consultants. WaveRider won two awards, one for NLOS performance and another "Plug & Play" capability.

With more than 60 network systems utilizing the 902-928 MHz band installed in the United States supporting thousands of users, WaveRider's Last Mile Solution® products are helping Internet Service Providers, municipal governments, utility companies, and other operators to bring immediate broadband access to their region, and realize a rapid return on their investments. WaveRider continues to deploy several systems each month, as service providers strive to meet the need for broadband services in underserved areas.

These networks in the United States, which operate in the 902-928 MHz band utilizing equipment regulated by Part 15 Rules, provide high-speed Internet access to communities, where there is little or no cable modem or DSL service. These network operators have been able to provide their customers with the type of broadband service usually available only in the larger cities, and they are doing so at an affordable price. They also are providing broadband service to schools, hospitals, and local governments, giving those entities the ability to use broadband to deliver better and more cost-efficient services to their constituents and enhance the quality of life in their communities.

WaveRider's fixed wireless solutions in the 902-928 MHz band support a key initiative of the Commission, namely that of providing high-speed Internet services to rural communities. This is exemplified by the City of Buffalo in Minnesota, a community of 12,000 located 26 miles southwest of Minneapolis-St. Paul. The municipal government decided to set up its own high-speed wireless network to provide Internet access to households, schools and businesses, after being informed by Qwest and the local cable company that neither planned to deploy broadband services in their community.¹

We do not agree with Progeny's observation that the bankruptcy of Metricom calls into question the viability of the use of unlicensed spectrum to provide mass-market commercial services.² There are currently over 1,000 Wireless Internet Service Providers (WISPs) in the United States, utilizing license-free spectrum in the 900 MHz, 2.4 GHz and 5.8 GHz bands, providing high-speed Internet access to hundreds of thousands of subscribers. According to a market research study by Allied Broadband Intelligence, operators in the license-exempt bands are spearheading the deployment of fixed wireless broadband and are showing profits on their initial investments.³

WaveRider is concerned that the changes to the rules requested by Progeny to amend the rules governing Location and Monitoring Services (LMS), will eliminate the

¹ "Shortcuts to broadband Buffalo, Minn.: Taking matters into its own hands" *Federal Computer Week*, February 11, 2002.

² Progeny LMS, LLC. Amendment of Part 90 of the Commission's Rules Governing the Location and Monitoring Service to Provide Greater Flexibility. *Petition for Rule Making* File RM-10403, March 5, 2002 (*Progeny Petition*) at 7, note 9.

³ Allied Broadband Intelligence. *Unlicensed Spectrum*. July 2001

possibility of Part 15 devices coexisting with the LMS operators in the 902-928 MHz band. The Commission is no doubt aware that Part 15 devices are used extensively in this band. In addition to Internet access, hundreds of thousands of Part 15 devices are used for SCADA systems by power utilities and pipeline systems. They are also used for automatic meter reading, inventory control, package tracking and shipping control, alarm services, local area networks, and cordless telephones. As a result, any changes to the rules governing the operation of Part 15 devices in 902-928 MHz band, could potentially have an impact on public safety and commerce.

WaveRider will not comment on the commercial viability of LMS services in the 902-928 MHz band. It is unfortunate that Progeny does not provide details on the type of equipment it requires to implement an LMS service. As a manufacturer of equipment in the 902-928 MHz band, WaveRider cannot comment on the validity of Progeny's claim that other equipment manufacturers are not willing to develop systems for their services, without additional information. Nevertheless, it appears that consumers currently have a variety of alternatives readily available to them that can deliver similar services today that are being proposed by LMS operators. This would include cellular/PCS and satellite-based systems. In addition, more auto manufacturers are including embedded systems for vehicles tracking and roadside assistance.⁴ Given this competitive environment, it is debatable whether the viability of LMS services in the 900 MHz band would be enhanced through changes proposed by Progeny.

⁴ For example General Motors OnStar system.

It is evident that the Commission, in recognizing the important contribution to the public provided by Part 15 technologies and amateur radio operators sought to develop a band plan that would maximize the ability of these services to coexist with LMS services. The *LMS Report and Order* also established limitations on LMS systems' interconnection with the public switched network and set forth a number of technical requirements intended to ensure successful coexistence of all services authorized to operate in the band. Included in the auction notice is a Due Diligence section that reminds potential bidders that LMS operates in the 902-928 MHz bands. Bidders were informed that use of this band is shared among a number of different users.⁵ This Due Diligence section goes on by stating that the band plan and rules outlined in the *LMS Report and Order*⁶ were adopted by the FCC with an eye toward minimizing the potential interference within and among the various users of the 902-928 MHz band. The band plan accordingly permits secondary operations across the entire band by users of unlicensed Part 15 devices and amateur licenses.

In regard to Progeny's specific requests, WaveRider has the following comments:

1. Elimination of the LMS "Spectrum Cap"

Progeny asserts that the LMS "spectrum cap" under the current rules is unnecessary and counterproductive and that additional spectrum is necessary to offer more robust and

⁵ Auction of Location and Monitoring Service Licenses, Auction Notice and Filing Requirements for 528 Multilateration Licenses Scheduled for December 15, 1998 -- Minimum Opening Bids and Other Procedural Issues PUBLIC NOTICE (DA 98-1879) at 4

⁶ Amendment of Part 90 of the Commission's Rules to Adopt Regulations for Automatic Vehicle Monitoring Systems, *Report and Order*, PR Docket No. 93-61, 10 FCC Rcd 4695 (1995) ("*LMS Report and Order*").

higher quality LMS services.⁷ Since Progeny is not at this time, offering any LMS services of any kind, it is difficult to assess the validity of this claim. Progeny provides no technical or spectrum usage data of any sort, in order to determine whether LMS operators are constrained by the current “spectrum cap”.

The band plan devised by the Commission, for the most part, creates separate allocations for the two types of LMS systems and takes into consideration the interference concerns of non-LMS users of the 902-928 MHz band. Under the spectrum plan, the allocation for LMS systems consists of three blocks of spectrum: (1) 904.000-909.750 and 927.750-928.000 MHz; (2) 919.750-921.750 and 927.500-927.750; and (3) 921.750-927.250 and 927.250-927.500 MHz.⁸ Under the terms of the auction one license was to have been awarded for each of these spectrum blocks in each of 176 Economic Areas (EA). This potentially represented a total of 528 LMS licenses. Four bidders, including Progeny won 289 licenses, 239 licenses are held by the Commission.⁹

WaveRider urges the Commission to reject Progeny’s request to eliminate the LMS “spectrum cap” and allow a single licensee to hold all of the LMS licenses in an EA. The bidders at the time of the auction were aware of the terms and conditions surrounding the auction, and their bids were based on what they perceived to be the market value of the bands in which they placed bids. To subsequently award these licensees additional bands of

⁷ *Progeny Petition at 23-24*

⁸ Amendment of Part 90 of the Commission's Rules to Adopt Regulations for Automatic Vehicle Monitoring Systems, *Memorandum Opinion and Order and Further Notice of Proposed Rule Making*, PR Docket No. 93-61, 12 FCC Rcd 13942 (1997) ("*LMS Further Notice*").

⁹ Auction 21: Location and Monitoring Service Fact Sheet. <http://wireless.fcc.gov/auctions/21/factsheet.html>

spectrum would not be fair to unsuccessful bidders in the auction, or be in the public interest.

Allowing a single licensee to hold all three LMS licenses in an EA would also cause interference concerns for non-LMS users of the 902-928 MHz band. Through frequency planning, WaveRider can deploy its systems to operate in channels not occupied by an LMS service in order to avoid interfering with that operator. Other Part 15 devices also have this option of setting their equipment to operate in different channels in the band. By permitting the LMS operator to occupy the entire band, eliminates this option and in effect shuts out Part 15 devices.

2. Elimination of the Restriction on Real-Time Interconnection

Progeny has requested the elimination of the restriction on real-time interconnection with the PSTN in order to provide additional services.¹⁰ The difficulty in assessing the impact of this request is that Progeny does not define the services that would be supported through real-time interconnections.

In the *LMS Report and Order*, the Commission recognized that LMS systems might have the need for interconnection with the PSTN, however the Commission did not intend that this service be used for general messaging purposes. The Commission also recognized that unlimited interconnection by LMS operators would be incompatible with the unique technical environment created by different types of services sharing the 902-928 MHz band. The Commission was concerned that such activity would not only increase the

¹⁰ *Progeny Petition at 24-26*

potential for interference to other users of the band, but would also detract from the location and monitoring purposes of the LMS allocation. Operational restrictions on LMS operators were implemented by the Commission in order to minimize interference to all users of the spectrum. These restrictions included limitations on messaging services and interconnection with the PSTN.¹¹

WaveRider supports the Commission's rulings restricting real-time interconnection of LMS systems to the PSTN. Allowing unlimited voice communications, for example, would be inappropriate because such traffic would increase interference levels throughout the band, and would eliminate the possibility of Part 15 devices coexisting with the LMS operators in the 902-928 MHz band.

3. Elimination of the Restriction on the Types of Services or Communications that can be offered by LMS Licensees

Progeny has requested that the Commission eliminate the restriction on the types of services and communications that an LMS licensee may provide. Progeny asserts that this restriction is in sharp contrast where the Commission has provided licensees with the flexibility to determine which services to offer and is inconsistent with the Commission's flexible spectrum allocation policies.¹²

WaveRider disagrees with Progeny's assertion that these restrictions on LMS operators in any way conflict with the Commission's flexible spectrum allocation policies. In fact we assert that by acceding to Progeny's requests, other users of the 902-928 MHz band would

¹¹ *LMS Report and Order* at 4708

¹² *Progeny Petition* at 26-27

be restricted in the types of services that they could offer. In awarding a license to Progeny and other LMS licensees, the Commission did not grant exclusive use of the license-exempt 902-928 MHz band to them, rather it was a license to operate an LMS service within certain parts of that band. WaveRider supports the Commission's flexible spectrum policies, however we would like to remind the Commission that examples that Progeny provides highlighting the Commission's rulings on flexible spectrum use involve licensees who have exclusive use of licensed bands.¹³

The 902-928 MHz band currently supports a wide variety of uses, and epitomizes the provision of flexible spectrum allocation. In addition to primary users and LMS operators, users of Part 15 technology and amateur operators offer a wide variety of services. As noted earlier, the services offered by Part 15 operators include meter reading, inventory control, package tracking and shipping control, alarm services, local area networks, cordless telephones and Internet access.

The Commission has always sought to maximize the ability of Part 15 and amateur operations to co-exist with the operation of LMS systems. Progeny has not specified what types of additional services that it and other LMS operators be allowed to provide. WaveRider does not believe that Progeny and LMS operators be granted a *carte blanche* by the Commission for the provision of additional services in the 902-928 MHz band without assessing the impact of these additional services would have on traffic on the band. If these additional services would lead to traffic that would increase interference levels throughout

¹³ *Progeny Petition at 9-15*

the band, then it would again eliminate the possibility of Part 15 devices coexisting with LMS operators.

4. Modifications or Elimination of the “Safe Harbor”

Progeny argues that additional technical constraints are required on Part 15 users in the 902-928 MHz band. For spread spectrum operators, Progeny has proposed a limit on the number of simultaneous users or on total power to afford protection to primary users and limit the adverse effects on “secondary” users.¹⁴ Progeny does not provide any evidence or examples of Part 15 operators interfering with LMS operators under the existing Rules, nor does Progeny provide any evidence or detailed technical data on how this proposed limit on simultaneous users would limit interference. However, WaveRider can point out that any restriction on the number of simultaneous users on spread spectrum devices will have a significant impact on the operations on a wireless Internet operator who can support hundreds of subscribers from a single base station.

Progeny has also requested a duty-cycle limit for non-spread spectrum operations.¹⁵ This limitation would not be acceptable for many continuous applications such as cordless phones and other consumer products such as wireless headphones and microphones.

The elimination of the “safe harbor” provisions as proposed by Progeny, would undermine one of the Commission’s objectives of accommodating secondary users of the 902-928 MHz band. In the *LMS Report and Order*, the Commission attempted to balance the equities and interests of each use of the 902-928 MHz band, including multilateration

¹⁴ *Progeny Petition* at 27-28

LMS systems and Part 15 users, without undermining the established relationship between unlicensed operations and licensed services. In this connection, the Commission affirmed that unlicensed Part 15 devices in the 902-928 MHz band are secondary and, as in other bands, may not cause harmful interference to and must accept interference from all other operations in the band.¹⁶ To accommodate the concerns of Part 15 users about their secondary status in light of multilateration LMS and the Commission authorizing LMS to use the additional 8 MHz of the band (902-903, 912-918 and 927-928 MHz), the Commission adopted rules that describe a "safe harbor" within which a Part 15 operation would be deemed not to cause interference to a multilateration LMS system.

The Commission clarified that if Part 15 devices operate within the "safe harbor" provision they will be deemed not to cause harmful interference to LMS operators. In addition, this provision applies to all LMS licensees, including existing and grandfathered licensees. In the *LMS Report and Order*, the Commission stated that a definition of what shall constitute harmful interference from amateur operations or unlicensed Part 15 devices to multilateration LMS systems would promote the cooperative use of the 902-928 MHz band.¹⁷

The Commission noted that this "safe harbor" approach would promote effective use of the 902-928 MHz band by the various services through establishing the parameters under which such devices may operate without risk of receiving complaints of interference from service providers with a higher allocation status. Based on the technical diversity of

¹⁵ *Id.* at 28

¹⁶ *LMS Report and Order* at 4715, ¶ 34 (citing 47 C.F.R. § 15.5(b))

the numerous existing LMS systems and the multiplicity of Part 15 devices that are in operation, the Commission previously concluded that some interference problems would remain unresolved under the rules.¹⁷ As a result, the Commission determined that by providing multilateration LMS system operators a means of recourse by way of complaint to the Commission only when a Part 15 device is not operating in the "safe harbor," the vast majority of equipment and services would be able to operate successfully in this band. Although the multilateration LMS system operators are not able to file a complaint with the Commission where the Part 15 user has satisfied the "safe harbor" provisions, the Commission encourages LMS operators to resolve the interference by modifying their systems or by obtaining the voluntary cooperation of the Part 15 user. The Commission has asserted that this approach is consistent with the secondary status of Part 15 devices under the Rules and that this approach would assure the efficient and equitable use of the 902-928 MHz band.

WaveRider supports the Commission's adoption of the "safe harbor" provisions, and believes that the adoption of the Progeny proposals to modify or eliminate the "safe harbor" provisions would not be in the public interest. Contrary to Progeny's assertions, WaveRider believes that the elimination of the "safe harbor" provisions would not enable the spectrum to be put in its highest and best use as Part 15 operators would be limited in the types of services they could provide.

¹⁷ *LMS Report and Order*, 10 FCC Rcd at 4715, ¶ 36

¹⁸ *Id.* At 4716, ¶ 37

Conclusion

Progeny has requested several changes to the rules regulating the operation of LMS licensees. However, Progeny has not provided any details on the types of additional services it intends to provide through this additional flexibility. Nor has Progeny offered any technical information outlining what impact these proposed new services would have the band and on existing users of the band. Granting LMS operators full flexible use of the 902-928 MHz band could potentially create harmful interference to Part 15 operations, and as result, disrupt the careful balance the Commission has attempted to achieve by enabling Part 15 and LMS operators share the band. Therefore, WaveRider requests that the Commission reject Progeny's request to initiate and conduct a rule making proceeding to grant additional operational and regulatory flexibility to LMS licenses in the 902-928 MHz.

Sincerely,

A handwritten signature in black ink, appearing to read "B. Sinclair", with a stylized flourish at the end.

Bruce Sinclair
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